

REMARKS

By this Amendment, Applicants have amended claims 4 and 13. Claims 4-7, 13, and 15-18 are pending.

Claim Objection Under Section 132

Claim 2 is objected to under 35 U.S.C. Section 132 "because it introduces new matter into the disclosure". In response to this objection, Applicants have amended the specification to more clearly define Applicants' claimed invention. More specifically, claim 4 states that the hologram dry plate is provided before the transmission-type hologram is formed. It is Applicants contention that this amendment to claim 4 more clearly defines the claimed invention and is supported throughout the application as originally filed; for example, see the application as originally filed at page 70, line 25 to page 73, line 19 and Figures 39A and 39B.

In view of the foregoing, Applicants respectfully submit that the Section 132 objection should be withdrawn.

Claim Rejections Under Section 112

Claim 4 stands rejected under 35 U.S.C. Section 112, first paragraph as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The basis for this Section 112 rejection is the same as the basis for the Section 132 objection to claim 4. Thus for the same reasons as stated above, Applicants respectfully submit that claim 4 is in full compliance with Section 112.

Claims 13 and 15-18 stand rejected under 35 U.S.C. Section 112, second paragraph, as being indefinite for reasons set forth in numbered paragraph 8 of the Office Action (page 3). In this connection, Applicants have amended claim 13, to which claims 15-18 depend, by more specifically indicating that the light having information of an object which is obtained by using diffused light is diffused in only the width direction of a hologram dry plate. This feature of Applicants' claim 13 is not the introduction of new matter but is supported by disclosure throughout the specification, as shown for example, at page 39, lines 18-33 and with respect to Figure 14.

Applicants respectfully submit that all pending claims are in full compliance with Section 112.

Claim Rejections Under Section 102

Claims 4, 6, 13, 15 and 17 stand rejected under 35 U.S.C. Section 102(b) as being anticipated by Kulick. Applicants respectfully traverse this Section 102(b) rejection.

Claims 4, 6 and 13 are independent claims, with claims 15-18 dependent on claim 13. Turning first to independent claim 4, it is directed to an optical display apparatus, comprising the following:

- ◆ a hologram device and light source, wherein the hologram is a **reflection-type hologram** formed by:
- ◆ light having information of an object, and
- ◆ reference light having an incident optical path different from that of the light having the information of the object, wherein
- ◆ the light having the information of the object is reconstructed light obtained by reconstructing a transmission-type hologram which is formed by: object light obtained by irradiating the object which is positioned between a **slit** and a hologram dry plate which becomes the transmission-type hologram upon diffused light having passed through the **slit**, and irradiation light having an incident object path different from that of the object light.

It is Applicants contention that the optical display apparatus defined by claim 4 is patentably distinguished from the Kulick Patent at least on the basis of the requirement that the optical display apparatus includes a reflection-type hologram which is formed by using a slit. This feature is neither taught nor suggested in the Kulick Patent.

The Kulick Patent in general concerns a display method for producing a plurality of different views of an object seen simultaneously. A series of two-dimensional projections of an object are produced for the plane of a display device in the Kulick display method. Wavefront interference information, independent of the two-dimensional projections, is produced for an intermediate plane. The two-dimensional projections and the wavefront

interference information are combined to create a diffraction grating in the display device to produce a holographic image of the objects seen from a number of positions relative to the display device.

More specifically, the process of forming a reflection-type hologram in the Kulick Patent is described with reference to Figure 9. Figure 9 illustrates a method in which a white light visible hologram is produced. In this method, a first hologram or master hologram 75 is transferred onto a second holographic plate 77 as it is illuminated by the reconstruction beam emanating from a laser 20 and passing through mirror 74, beam splitter 76, and mirror 78. The reference beam for the secondary hologram 77 falls on the opposite side of the holographic plate 77 via mirrors 70 and 72. As a result, an interference filter is created in the secondary holographic plate 77, with the plate 77 also having a diffraction pattern which characterizes the object.

But it is apparent from Figure 9 and the accompanying description that in forming the reflection-type hologram 77, there is **no use of a slit**. Furthermore, the master hologram 75, which is used in forming the reflection-type hologram 77, is also formed without using a slit (see Figure 4 of the Kulick Patent). Thus, in the reflection-type hologram of the Kulick Patent, there is no use of a slit as found in Applicants' claimed 4.

In the Office Action, there are statements which correlate the spatial filter F of the Kulick Patent to a slit. But Applicants respectfully submit that this correlation is incorrect. According to the shape of the spatial filter F, (shown in Figure 4 of the Kulick Patent) and the accompanying description that the beam "progressively enlarges or propagates as it leaves the filter" (see column 3, lines 37-38), it is apparent that the spatial filter F is a lens, and not a slit. The function of the spatial filter F to enlarge a beam is incompatible to the function of a slit to prevent a beam from enlarging.

Applicants note that there is a brief reference to a slit in the Kulick Patent with respect to Figure 7, at column 4, lines 19-28. But this description is in the context of a rainbow hologram (i.e., a transmission-type hologram) as shown in Figure 7. The Kulick Patent is silent as to using a slit when forming a reflection-type hologram as shown in Figure 9 thereof. Moreover, there is simply no suggestion or any motivation in the Kulick Patent that would lead one to consider using a slit in a reflection-type hologram as defined in Applicants' claim 4.

In view of the foregoing, Applicants respectfully submit that claim 4 is neither anticipated nor obvious in view of the Kulick Patent.

Independent claim 6 also relates to an optical display apparatus having a reflection-type hologram that is formed using a slit. Therefore claim 6, like claim 4 is patentably distinguished from the Kulick Patent.

Independent claim 13 concerns an optical display apparatus including:

- ◆ a hologram device and a light source, wherein the hologram is a reflection type hologram formed by:
- ◆ **light having information of an object which is obtained by using diffused light diffusing in only the width direction of a hologram dry plate,**
- ◆ reference light having an incident optical path different from that of the light having the information of the object, and wherein
- ◆ a reconstructed image of the object is displayed by light from the light source.

It is Applicants contention that the optical display apparatus of claim 13 is patentably distinguished from the Kulick Patent at least on the basis of the feature of a reflection-type hologram which is formed using diffused light which diffuses in only the width direction of a hologram dry plate. This feature is neither taught nor suggested in the Kulick Patent.

As Applicants have pointed out, there is a discussion in the Kulick Patent relating to a method of forming a reflective-type hologram as shown in Figure 9 of the Kulick Patent. But nowhere in the Kulick Patent is there any teaching or suggestion of using diffused light which diffuses in only the width direction of a hologram dry plate to form the reflective-type hologram as set forth in Applicants' claim 13. Based on this feature, claim 13 and dependent claims 15 and 17 are patentably distinguished from the Kulick Patent.

Based on the foregoing, Applicants respectfully request that the Section 102(b) rejection to claims 4, 6, 13, 15 and 17 should be withdrawn.

Claim Rejections Under Section 103

Claim 5 stands rejected under 35 U.S.C. Section 103(a) as being unpatentable over Kulick in view of Odhner. Applicants respectfully traverse this Section 103(a) rejection.

Claim 5 is directly dependent on claim 4 and includes the feature of a reflection-type hologram which is formed using a slit. Based on this feature, claim 4 can neither be anticipated nor obvious in view of the Kulick Patent. In addition, it is Applicants contention that this deficiency of the Kulick Patent is not overcome by the Odhner Patent.

In general, the Odhner Patent concerns a diffractive display and method using reflective or transmissive light yielding single pixel full color capability. Referring to Figures 18-20 of the Odhner Patent, a display results from a diffraction pattern 132 carried by a film or element 138 connected to an energy source which is energizable for movement of the film 138. Movement of the patterned film 138 generates a display using the diffracted light from the pattern 132. Film 138 can carry the diffraction pattern 132 and be energized for movement to generate the resulting diffracted light.

The Odhner Patent has been cited with respect to the holographic diffractive element shown in Figure 13 thereof. But the Odhner Patent does not teach or suggest a reflection-type hologram which is formed using a slit. Thus one skilled in the art looking at the Kulick and Odhner Patents would not consider Applicants invention including the feature of a reflection-type hologram which is formed using a slit. Claim 5 is therefore neither anticipated nor obvious in view of the Kulick and Odhner Patents. Accordingly, Applicants respectfully request that the Section 103(a) rejection to claim 5 be withdrawn.

Claim 7 stands rejected under 35 U.S.C. Section 103(a) as being unpatentable over Kulick. Applicants respectfully traverse this Section 103(a) rejection.

Claim 7 is an independent claim and like claim 4 includes the feature of an optical display apparatus including a reflection-type hologram which is formed using a slit. As noted above, this feature is neither taught nor suggested in the Kulick Patent. Therefore, the rejection of claim 7 based on the Kulick Patent should be withdrawn.

Claims 16 and 18 stand rejected under 35 U.S.C. Section 103(a) as being unpatentable over Kulick. Applicants respectfully traverse this Section 103(a) rejection.

Claims 16 and 18 are dependent on claim 13 and therefore include the feature of an optical display apparatus having a reflection-type hologram which is formed using diffused light which diffuses in only the width direction of a hologram dry plate. As Applicants have noted above with respect to claim 13, this feature is neither taught nor suggested in the Kulick Patent. Therefore, claims 16 and 18 which are dependent on claim 13 are patentably distinguished over the Kulick Patent.

In view of the foregoing remarks and amendments, Applicants respectfully submit that claims 4-7, 13 and 15-18 are in condition for allowance. Reconsideration and allowance of all pending claims are respectfully requested.

Respectfully Submitted,

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Enclosures:

Version with markings to show changes made

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VERSION WITH MARKINGS TO SHOW CHANGES MADECLAIMS:

1 4. (Twice Amended) An optical display apparatus, comprising
2 a hologram device and a light source, wherein the hologram is a reflection-type
3 hologram formed by:
4 light having information of an object; and
5 reference light having an incident optical path different from that of
6 the light having the information of the object, wherein
7 a reconstructed image of the object is displayed by light from the
8 light source, and wherein
9 the light having the information of the object is reconstructed light
10 obtained by reconstructing a transmission-type hologram which is formed by:
11 object light obtained by irradiating the object which is positioned between a slit
12 and [the] a [transmission-type] hologram dry plate which becomes the
13 transmission-type hologram upon [with] diffused light having passed through the
14 slit; and irradiation light having an incident optical path different from that of the
15 object light.

1 13. (Twice Amended) An optical display apparatus, comprising
2 a hologram device and a light source, wherein the hologram is a reflection-type
3 hologram formed by:
4 light having information of an object which is obtained by using
5 diffused light diffusing in only [one direction of the hologram] the width
6 direction of a hologram dry plate; and
7 reference light having an incident optical path different from that of
8 the light having the information of the object, and wherein
9 a reconstructed image of the object is displayed by light from the
10 light source.